

IN THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

What is claimed is:

1. (Currently Amended) A power generation, distribution and on-board electrical power supply system for low-emission surface navy vessels of various classes and sizes, ~~in the form of an equipment segment, having~~comprising:

~~_____~~at least one cruise propulsion system, ~~for example an electrical steerable propeller propulsion system, which can be supplied with electrical power from a DC network,; and having~~

~~_____~~at least one additional propulsion system, ~~for example a waterjet propulsion system which can~~to be switched on when required and ~~can be supplied~~be supplied with electrical power from an AC network, ~~in which case the DC network and the AC network are being~~ configured in such a manner as to allow power to be transferred in both directions therebetween~~them~~.

2. (Currently Amended) The equipment segment as claimed in claim 1, ~~characterized in that~~wherein the DC network has at least one fuel cell module for generation of electrical power, ~~in particular a fuel cell module which at least partially consumes reformer hydrogen.~~

3. (Currently Amended) The equipment segment as claimed in claim 2, ~~characterized in that~~wherein the fuel cell module comprises air-breathing fuel cells which are connected to one another, ~~in particular fuel cells with different dynamics.~~

4. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one of the preceding claims, characterized in that~~ the AC network ~~has~~ includes at least one synchronous generator which is driven by a gas turbine, ~~for example a synchronous generator using HTS technology, in order to generate electrical power.~~

5. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the DC network is a 1 kV to 15 kV network.

6. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the AC network is a 1 kV to 15 kV/50 Hz or 60 Hz network.

7. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the DC network and the AC network can jointly supply electrical power to the on-board network in the vessel as required.

8. (Currently Amended) The equipment segment as claimed in one claim 1, wherein ~~or more of the preceding claims, characterized by~~ a DC intermediate circuit for coupling the on-board network to at least one of the DC and ~~or to~~ the AC network.

9. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the DC network supplies weapon and electronic systems with electrical power, ~~including high energy pulse or laser weapons.~~

10. (Currently Amended) The equipment segment as claimed in claim 1, wherein one or more of the preceding claims, ~~characterized in that~~ a plurality of fuel cell modules are arranged distributed in different sections or safety zones, which are compartmentalized from one another in the navy vessel, and form a fail-safe network.

11. (Currently Amended) An equipment segment, as claimed in claim 1, wherein in particular as claimed in one or more of the preceding claims, ~~characterized in that~~ the electrical network, which is formed in the navy vessel, includes ~~has~~ current limiting appliances which are in the form of at least one of HTS (high-temperature superconductor) current limiters and/or semiconductor switches, and by ~~means of~~ which the reaction of voltage dips in the event of short circuits, including network elements which are not affected, is restricted to a time interval in the region of a few milliseconds, ~~in particular is limited to < 1 ms,~~ and voltage dips such as these can thus be restricted to the respectively affected network element.

12. (Currently Amended) The electrical network as claimed in claim 11, ~~having~~ comprising current limiting appliances, each of which includes ~~has~~ at least one of an HTS current limiter, and a semiconductor switch and/or a circuit breaker, by ~~means of~~ which it is possible to protect ~~in particular~~ energy sources in the form of at least one of electrical power generation units and/or energy stores.

13. (Currently Amended) The equipment segment as claimed in claim 11 ~~or 12,~~ characterized in that ~~wherein~~ the HTS current limiters are combined with secondary protective devices which act on the circuit breakers.

14. (Currently Amended) The equipment segment as claimed in claim 11, wherein one of claims 11 to 13, ~~characterized in that~~ the electrical network is in the form of a hierarchical

network with current/time grading, in whose at least one of network couplings and/or connecting lines the current limiting appliances are arranged.

15. (Currently Amended) The equipment segment as claimed in claim 11, wherein~~one of claims 11 to 14, characterized in that~~ the current limiting appliances are arranged such that current selectivity ~~can be achieved by means of them~~is achievable thereby, in conjunction with the network configuration.

16. (Currently Amended) The equipment segment as claimed in claim 11, wherein~~one of claims 11 to 15, characterized in that~~ the electrical network in the navy vessel is in the form of a hierarchical network with at least one of as little interconnection as possible ~~or~~and with reaction-free interconnection.

17. (Currently Amended) The equipment segment as claimed in claim 16, ~~in which~~wherein the reaction-free interconnection is provided by diode-decoupled feeding of at least one of DC switching systems ~~or~~and DC loads from two different vessel protection sections.

18. (Currently Amended) The equipment segment as claimed in ~~one claim 11, wherein~~or more of claims 11 to 17, ~~characterized in that~~the electrical network that is formed ~~can be switched~~is switchable from a normal state, in which it is in the form of an interconnected electrical network, to a special state, in which it is in the form of a hierarchical network and the effectiveness of the current limiting devices is ensured.

19. (Currently Amended) The equipment segment as claimed in ~~one or more of claims 11 to 18~~claim 11, whose individual switching devices include~~have~~ a communication device by means of which contact can be made with a higher-level switch, which

trips without any time delay, in the event of failure of the switching device.

20. (Currently Amended) The equipment segment as claimed in ~~one or more of claims 11 to 19~~claim 11, whose automation and control device ~~includes~~has an on-time diagnosis unit with a high computation speed, ~~which preferably operates on a self-learning basis, using elements of fuzzy logic or of a neural network.~~

21. (Currently Amended) The equipment segment as claimed in claim 20, ~~in which~~wherein at least one of ~~a sensor or~~and signaling unit is provided at every potential fault location, by ~~means of~~ which an appliance state which is associated with the respective fault location or a physical variable which is associated with the respective fault location ~~can be detected and can be passed~~is detectable and passable to the on-time diagnosis unit for the automation and control device.

22. (Currently Amended) The equipment segment as claimed in claim 21, ~~in which~~wherein the at least one sensor ~~or~~and signaling units ~~include~~have supplies which are independent of their fault locations.

23. (Currently Amended) The equipment segment as claimed in claim 21 ~~or 22~~, ~~in which~~wherein the connection between the on-time diagnosis unit for the automation and control device and at least one of the sensor or~~and~~ signaling units is provided by ~~means~~way of wire-based elements, ~~for example control cables or bus cables in the form of copper lines or glass fiber lines.~~

24. (Currently Amended) The equipment segment as claimed in ~~one or more of claims 21 to 23~~, ~~including~~having back-up sensors which detect without the use of wires and transmit

without the use of wires, with decentralized repeaters being installed in each vessel protection section.

25. (Currently Amended) The equipment segment as claimed in ~~one or more of the preceding claims, in which~~claim 1, wherein at least one of PEM ~~or~~ and HT fuel cells are provided as the electrical power generation units, by ~~means of~~ which direct current ~~can be supplied~~is suppliable to a main network in the form of a DC medium-voltage network.

26. (Currently Amended) The equipment segment as claimed in claim 1, wherein at least one of ~~one or more of the preceding claims, in which~~ batteries, solid-state storage devices, ~~such as magnetic storage devices and capacitors and/or~~ rotating storage devices, are provided as energy stores ~~and are preferably arranged in an on board network intermediate circuit.~~

27. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the equipment segment includes~~has~~ at least one of network couplings and/or network connecting lines, in each of which there is an HTS current limiter, ~~preferably with an associated series connected circuit breaker.~~

28. (Currently Amended) The equipment segment as claimed in claim 1, wherein ~~one or more of the preceding claims, characterized in that~~ the equipment segment includes~~has~~ HTS current limiters with a superconductor composed of YBaCuO compounds, which is designed using thin-film technology and uses liquid nitrogen as the cryogenic liquid.

29. (Currently Amended) The equipment segment as claimed in claim 1, further comprising ~~one or more of the preceding claims, having~~ outgoers in which semiconductor switches are

arranged, ~~preferably with an associated series connected circuit breaker.~~

30. (Currently Amended) The equipment segment as claimed in claim 1, wherein one or more of the preceding claims, ~~characterized in that~~ the equipment segment ~~has~~ includes a main on-board network with outgoers which connect the on-board network intermediate circuits and ~~have~~ includes semiconductor switches.

31. (Currently Amended) The equipment segment as claimed in claim 1, wherein one or more of the preceding claims, in whose an on-board network of the equipment segment, main groups associated load outgoers and semiconductor switches are arranged.

32. (Currently Amended) The equipment segment as claimed in claim 1, wherein one or more of the preceding claims, in which energy sources in the form of at least one of electrical power generation units ~~and~~ energy stores are ~~can be protected by~~ means of semiconductor switches, ~~in particular high speed semiconductor switches.~~

33. (Currently Amended) The equipment segment as claimed in ~~one or more of the preceding claims,~~ having claim 1, including an electrical network whose semiconductor switches are in the form of at least one of IGCT switching elements (integrated gate commutated thyristors), GTO (gate turn-off thyristors), IGBT (insulated gate bipolar transistors) ~~and~~ MOS transistors.

34. (Currently Amended) The equipment segment as claimed in claim 33, ~~in which~~ wherein switching elements of the semiconductor switches, ~~which are~~ in the form of IGCTs, are protected by ~~means of~~ snubber circuits.

35. (Currently Amended) The equipment segment as claimed in ~~one or more of the preceding claims, characterized in that~~claim 1, wherein the equipment segment is in the form of a standard equipment segment for navy vessels of various size, with size matching being provided in the form of at least one of network reduction and/or enlargement.

36. (Currently Amended) The equipment segment as claimed in ~~one or more of the preceding claims, characterized in that~~claim 1, wherein POD propulsion systems are used as the cruise propulsion systems.

37. (Currently Amended) The equipment segment as claimed in ~~one or more of claims 1 to 35, characterized in that~~claim 1, wherein electrical in-board motors are used as the cruise propulsion systems.

38. (New) The equipment segment as claimed in claim 22, wherein the connection between the on-time diagnosis unit for the automation and control device and at least one of the sensor and signaling units is provided by way of wire-based elements.

39. (New) The equipment segment as claimed in claim 22, including back-up sensors which detect without the use of wires and transmit without the use of wires, with decentralized repeaters being installed in each vessel protection section.